

## GCC 3.4.5 Tips

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1. Compiling with the optimization options of O1 and O2 at the one time terminates a program with a stack point error during execution. The position of stack pointer is illegal.

### ◆ Symptoms

When a program is compiled with the optimization options of -O1 and -O2, it is terminated abnormally during execution. A stack pointer is at the illegal location when it terminated.

### ◆ Cause

Our limited research has confirmed this to a bug in the optimization function of compiler. This occurs when the optimization options of both “-fcrossjumping” and “-fif-conversion2” are used at one time. The following matrix shows combination examples of the optimization options and the results of execution.

Note:

According to the GCC manual, the optimization option (-O1) includes option “-fcrossjumping”, and the option (-O2) includes option “-fcrossjumping” and “-fif-conversion2”.

Options used	-fcrossjumping	-fif-conversion2	Program terminates:
-O2	○	○	abnormally
-O1 -fcrossjumping	○	○	abnormally
-O2 -fno-if-conversion2	○	-	normally
-O1	-	○	normally
-O1 -fno-if-conversion2 -fcrossjumping	○	-	normally

### ◆ Workaround

This problem can be avoided in two ways:

- (i) Add an option “-fno-crossjumping”.
- (ii) Use one of the combinations that can avoid the abnormal termination. See the matrix above.

